

Contaminants in medium-sized mammals around a radioactive liquid waste lagoon at Los Alamos National Laboratory.

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Animals may be exposed to radioactive and nonradioactive contamination from wastes produced by historic and current operations at Los Alamos National Laboratory (LANL). Understanding the potential for uptake and transport of contaminants by wildlife is an important component of environmental monitoring. We trapped, marked, and sampled medium-sized mammals (rock squirrel, raccoon, striped skunk, and bobcat) around a radioactive liquid waste lagoon at LANL during 1997 and 1998. Radio-frequency identification tags were used to permanently mark animals and to monitor their movements into and out of the lagoon area. Urine from captured animals was sampled for tritium, and hair was sampled for metal levels (Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Tl). Results from mammals at the lagoon site were compared to mammals captured north of LANL. Rock squirrels captured at the lagoon had significantly higher levels of tritium than animals captured off LANL in both 1997 and 1998 ( $P = 0.024$  in 1997 and  $P < 0.0005$  in 1998). Rock squirrels captured farther from the lagoon tended to have lower tritium levels. Metal levels were not significantly elevated in rock squirrels at the lagoon area compared with rock squirrels at the control area. Although marked animals were recorded moving into the lagoon area, not all animals with elevated tritium levels were detected at the lagoon. Therefore, indirect routes are probably important in the uptake of tritium around the lagoon area.

Tritium concentrations (pCi/L) in rock squirrel urine from the lagoon area by date in 1997 and 1998.

